

This Page Is Inserted by IFW Operations  
and is not a part of the Official Record

## **BEST AVAILABLE IMAGES**

Defective images within this document are accurate representations of the original documents submitted by the applicant.

Defects in the images may include (but are not limited to):

- BLACK BORDERS
- TEXT CUT OFF AT TOP, BOTTOM OR SIDES
- FADED TEXT
- ILLEGIBLE TEXT
- SKEWED/SLANTED IMAGES
- COLORED PHOTOS
- BLACK OR VERY BLACK AND WHITE DARK PHOTOS
- GRAY SCALE DOCUMENTS

**IMAGES ARE BEST AVAILABLE COPY.**

**As rescanning documents *will not* correct images,  
please do not report the images to the  
Image Problem Mailbox.**

## SEQUENCE LISTING

<110> Schnable, Patrick S.  
Liu, Feng  
Fu, Yan

<120> NUCLEIC ACID MOLECULES ENCODING MULTIPLE  
START CODONS AND HISTIDINE TAGS

<130> 08411-027001

<140> US 09/897,776

<141> 2001-06-29

<150> US 09/732,990

<151> 2000-12-08

<150> US 60/169,725

<151> 1999-12-08

<160> 37

<170> FastSEQ for Windows Version 4.0

<210> 1

<211> 93

<212> DNA

<213> Artificial Sequence

<220>

<223> Synthetically generated oligonucleotide

<221> CDS

<222> (1)...(84)

<221> CDS

<222> (88)...(93)

<400> 1

aag ctt cac cac cat cat cat cac gca tca cca cca cca cca cgc atc  
Lys Leu His His His His His His Ala Ser Pro Pro Pro Pro Arg Ile  
1 5 10 15

48

atc atc acc atc acc tcg agc gtc aca cta gct gag taa gca tgc  
Ile Ile Thr Ile Thr Ser Ser Val Thr Leu Ala Glu Ala Cys  
20 25 30

93

<210> 2

<211> 66

<212> DNA

<213> Artificial Sequence

<220>

<223> Synthetically generated oligonucleotide

<400> 2

gtacccacca ccacatcat caccgatcac caccaccacc acgcatcatc atcaccatca 60  
cctcga 66

<210> 3  
<211> 14  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> linker

<400> 3  
ctgcagcggc cgcg 14

<210> 4  
<211> 22  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> linker

<400> 4  
ctaggcgccg gcgacgtctc ga 22

<210> 5  
<211> 16  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> linker

<400> 5  
ctagctgcag atatca 16

<210> 6  
<211> 16  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> linker

<400> 6  
agcttgatat ctgcag 16

<210> 7  
<211> 25  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> primer for PCR

<400> 7  
ccatcgatcc gagatagggt tgagt 25

<210> 8  
 <211> 20  
 <212> DNA  
 <213> Artificial Sequence

<220>  
 <223> primer for PCR

<400> 8  
 acgagctcag gcagagacga

20

<210> 9  
 <211> 20  
 <212> DNA  
 <213> Artificial Sequence

<220>  
 <223> primer for PCR

<400> 9  
 acgagctcgc agagacgacg

20

<210> 10  
 <211> 26  
 <212> DNA  
 <213> Artificial Sequence

<220>  
 <223> primer for PCR

<400> 10  
 cctcgagtca cacaggaaac agctaa

26

<210> 11  
 <211> 24  
 <212> DNA  
 <213> Artificial Sequence

<220>  
 <223> primer for PCR

<400> 11  
 ggctagcagc tgtttcctgt gtga

24

<210> 12  
 <211> 18  
 <212> DNA  
 <213> Artificial Sequence

<220>  
 <223> primer for PCR

<400> 12  
 gtggagcatc tggtcgca

18

<210> 13

<211> 37  
 <212> DNA  
 <213> Artificial Sequence

<220>  
 <223> primer for PCR

<400> 13  
 gagatctgcc ataacatgtc atcatagctg tttcctg

37

<210> 14  
 <211> 35  
 <212> DNA  
 <213> Artificial Sequence

<220>  
 <223> linker

<400> 14  
 ctagccgaaa ttaatacgac tcactatagg gagac

35

<210> 15  
 <211> 66  
 <212> DNA  
 <213> Artificial Sequence

<220>  
 <223> Synthetically generated oligonucleotide

<400> 15  
 tatacatatg gcatggcatg gccactgcag gatccaccac catcatcatc acgcatcacc  
 accacc

60  
66

<210> 16  
 <211> 67  
 <212> DNA  
 <213> Artificial Sequence

<220>  
 <223> Synthetically generated oligonucleotide

<400> 16  
 gacgtcgcat gcttactcag ctagtgtgat ggtgatgatg atggcctatg gtggtggtgg  
 tgatgcg

60  
67

<210> 17  
 <211> 97  
 <212> DNA  
 <213> Artificial Sequence

<220>  
 <223> Synthetically generated oligonucleotide

<400> 17  
 taatacgact cactataggg agaccacaac ggtttcctc tagaaataat tttgtttaac  
 ttttaagaagg agatatacat atggcatggc atggcca

60  
97

<210> 18  
 <211> 13  
 <212> DNA  
 <213> Artificial Sequence

<220>  
 <223> Synthetically generated oligonucleotide

<400> 18  
 atggcatggc atg

13

<210> 19  
 <211> 35  
 <212> DNA  
 <213> Artificial Sequence

<220>  
 <223> linker

<400> 19  
 aattgtctcc ctatagtgag tcgtattaat ttcgg

35

<210> 20  
 <211> 28  
 <212> PRT  
 <213> Artificial Sequence

<220>  
 <223> Synthetically generated peptide

<400> 20  
 Lys Leu His His His His His Ala Ser Pro Pro Pro Pro Arg Ile  
 1 5 10 15  
 Ile Ile Thr Ile Thr Ser Ser Val Thr Leu Ala Glu  
 20 25

<210> 21  
 <211> 93  
 <212> DNA  
 <213> Artificial Sequence

<220>  
 <223> Synthetically generated oligonucleotide

<221> CDS  
 <222> (2)...(76)

<221> CDS  
 <222> (80)...(91)

<400> 21  
 a agc ttc acc acc atc atc atc acg cat cac cac cac cac cac gca tca  
 Ser Phe Thr Thr Ile Ile Ile Thr His His His His His His Ala Ser  
 1 5 10 15

49

tca tca cca tca cct cga gcg tca cac tag ctg agt aag cat  
 Ser Ser Pro Ser Pro Arg Ala Ser His Leu Ser Lys His

91

20

25

gc

93

<210> 22  
 <211> 25  
 <212> PRT  
 <213> Artificial Sequence

<220>  
 <223> Synthetically generated peptide

<400> 22  
 Ser Phe Thr Thr Ile Ile Ile Thr His His His His His His Ala Ser  
 1 5 10 15  
 Ser Ser Pro Ser Pro Arg Ala Ser His  
 20 25

<210> 23  
 <211> 4  
 <212> PRT  
 <213> Artificial Sequence

<220>  
 <223> Synthetically generated peptide

<400> 23  
 Leu Ser Lys His  
 1

<210> 24  
 <211> 93  
 <212> DNA  
 <213> Artificial Sequence

<220>  
 <223> Synthetically generated oligonucleotide

<221> CDS  
 <222> (3)...(80)

<221> CDS  
 <222> (84)...(92)

<400> 24  
 aa gct tca cca cca tca tca tca cgc atc acc acc acc acc acg cat 47  
 Ala Ser Pro Pro Ser Ser Ser Arg Ile Thr Thr Thr Thr Thr His  
 1 5 10 15

cat cat cac cat cac ctc gag cgt cac act agc tga gta agc atg 92  
 His His His His His Leu Glu Arg His Thr Ser Val Ser Met  
 20 25

c

93

<210> 25  
 <211> 26

<212> PRT

<213> Artificial Sequence

<220>

<223> Synthetically generated peptide

<400> 25

Ala Ser Pro Pro Ser Ser Ser Arg Ile Thr Thr Thr Thr Thr His His  
1 5 10 15  
His His His His Leu Glu Arg His Thr Ser  
20 25

<210> 26

<211> 93

<212> DNA

<213> Artificial Sequence

<220>

<223> Synthetically generated oligonucleotide

<400> 26

gcatgctttac tcagctagtgtg tgacgctcga ggtgatgggtg atgatgatgc gtgggtgggtgg 60  
tggtgatgctg tgatgatgat ggtgggtgaag ctt 93

<210> 27

<211> 118

<212> DNA

<213> Artificial Sequence

<220>

<223> Synthetically generated oligonucleotide

<221> CDS

<222> (1) . . . (99)

<221> CDS

<222> (103) ... (117)

<400> 27

tat aca tat ggc atg gca tgg cca ctg cag gat cca cca cca tca tca 48  
 Tyr Thr Tyr Gly Met Ala Trp Pro Leu Gln Asp Pro Pro Pro Ser Ser  
 1 5 10 15

tca cgc atc acc acc acc acc ata ggc cat cat cat cac cat cac act 96  
Ser Arg Ile Thr Thr Thr Thr Ile Gly His His His His His His Thr  
20 25 30

agc tga gta agc atg cga cgt c 118  
Ser Val Ser Met Arg Arg  
35

<210> 28

.<211> 33

<212> PRT

<213> Artificial Sequence

<220>



<223> Synthetically generated peptide

<400> 28

Tyr Thr Tyr Gly Met Ala Trp Pro Leu Gln Asp Pro Pro Pro Ser Ser  
 1 5 10 15  
 Ser Arg Ile Thr Thr Thr Thr Ile Gly His His His His His His Thr  
 20 25 30  
 Ser

<210> 29

<211> 5

<212> PRT

<213> Artificial Sequence

<220>

<223> Synthetically generated peptide

<400> 29

Val Ser Met Arg Arg  
 1 5

<210> 30

<211> 118

<212> DNA

<213> Artificial Sequence

<220>

<223> Synthetically generated oligonucleotide

<221> CDS

<222> (2)...(70)

<221> CDS

<222> (74)...(103)

<221> CDS

<222> (107)...(118)

<400> 30

t ata cat atg gca tgg cat ggc cac tgc agg atc cac cac cat cat cat . 49  
 Ile His Met Ala Trp His Gly His Cys Arg Ile His His His His His  
 1 5 10 15

cac gca tca cca cca cca cca tag gcc atc atc atc acc atc aca cta 97  
 His Ala Ser Pro Pro Pro Pro Ala Ile Ile Ile Thr Ile Thr Leu  
 20 25 30

gct gag taa gca tgc gac gtc 118  
 Ala Glu Ala Cys Asp Val  
 35

<210> 31

<211> 23

<212> PRT

<213> Artificial Sequence

<220>

<223> Synthetically generated peptide

<400> 31

Ile His Met Ala Trp His Gly His Cys Arg Ile His His His His His  
 1 5 10 15  
 His Ala Ser Pro Pro Pro Pro  
 20

<210> 32

<211> 10

<212> PRT

<213> Artificial Sequence

<220>

<223> Synthetically generated peptide

<400> 32

Ala Ile Ile Ile Thr Ile Thr Leu Ala Glu  
 1 5 10

<210> 33

<211> 4

<212> PRT

<213> Artificial Sequence

<220>

<223> Synthetically generated peptide

<400> 33

Ala Cys Asp Val

<210> 34

<211> 118

<212> DNA

<213> Artificial Sequence

<220>

<223> Synthetically generated oligonucleotide

<221> CDS

<222> (3)...(95)

<221> CDS

<222> (99)...(116)

<400> 34

ta tac ata tgg cat ggc atg gcc act gca gga tcc acc acc atc atc  
 Tyr Ile Trp His Gly Met Ala Thr Ala Gly Ser Thr Thr Ile Ile  
 1 5 10 15

47

atc acg cat cac cac cac cat agg cca tca tca tca cca tca cac  
 Ile Thr His His His His His His Arg Pro Ser Ser Ser Pro Ser His  
 20 25 30

95

tag ctg agt aag cat gcg acg tc  
 Leu Ser Lys His Ala Thr  
 35

118

<210> 35  
 <211> 31  
 <212> PRT  
 <213> Artificial Sequence

<220>  
 <223> Synthetically generated peptide

<400> 35  
 Tyr Ile Trp His Gly Met Ala Thr Ala Gly Ser Thr Thr Ile Ile Ile  
 1 5 10 15  
 Thr His His His His His Arg Pro Ser Ser Ser Pro Ser His  
 20 25 30

<210> 36  
 <211> 6  
 <212> PRT  
 <213> Artificial Sequence

<220>  
 <223> Synthetically generated peptide

<400> 36  
 Leu Ser Lys His Ala Thr  
 1 5

<210> 37  
 <211> 118  
 <212> DNA  
 <213> Artificial Sequence

<220>  
 <223> Synthetically generated oligonucleotide

<400> 37  
 gacgtcgcat gcttactcag ctagtgtgat ggtgatgatg atggcctatg gtgggtggg 60  
 tgatgcgtga tgatgatggt ggtggatcct gcagtggcca tgccatgcca tatgtata 118